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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,568	12/12/2003	Satoshi Kojima	03500.017762.	8616

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EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,568

Applicant(s)

KOJIMA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-10,17 and 20 is/are rejected.
- 7) ☒ Claim(s) 2,4,11-16,18,19 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/26/04;3/16/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The copending applications 10/630,727 and 10/630,772, listed in the Information Disclosure statement filed on Apr. 26, 2004, have issued as US Patent Nos. 7,033,721 and 7,033,717, respectively. The examiner has considered the US patents and has listed them on the attached form PTO-892.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

In Fig. 2, the reference characters **201**, **204**, and **205**. See the instant specification, page 4

In Fig. 5, the reference characters **5113**, **5114**, **5116**, **5117**, **5118**, **5119**, **5120**, and **5123**. See the instant specification, pages 33-38.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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3. The drawings are also objected to because

Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See the instant specification, page 4, lines 11-14, which identifies the drawing as "an example of protuberances in a conventional electrophotographic photosensitive member." See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In claim 5, the recitation, "layer regions are present in a number of 2 to 6 in the layer thickness direction," lacks antecedent basis in the specification.

(2) In claims 6 and 8, the term "charge injection blocking layer" (emphasis added) lacks antecedent basis in the

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specification. See the instant specification, page 15, line 25, and page 16, lines 6-7, which discloses a "blocking layer."

(3) The entire recitations in claims 10 and 19-21 lack antecedent basis in the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 20 is are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 is indefinite in the phrase "wherein said heat treatment is carried out in the transporting vacuum chamber" (emphasis added) for lack of unambiguous antecedent basis for the component "transporting vacuum chamber" in claim 9, from which claim 20 depends. Claim 9 does not recite the use of a transporting vacuum chamber.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this

Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 5-10, and 17 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 7,033,721 B2 (Hashizume'721).

Hashizume'721 discloses an electrophotographic photosensitive member comprising a conductive support, a lower charge blocking layer, photoconductive layer, an intermediate layer, an upper charge blocking layer, and a surface layer. Col. 11, lines 21-30; col. 12, lines 59-66; and example B-4 at col. 40. The lower charge blocking layer blocks a carrier from

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entering from the substrate to the photoconductive layer.

Col. 11, lines 24-26. The upper charge blocking layer blocks "electric charges being introduced from the surface side of the photosensitive member to the first layer side when the photosensitive member has its free surface subjected to charging processing with a certain polarity." Col. 12, lines 61-64. The photoconductive layer comprises amorphous material having silicon atoms as its base, which meets the photoconductive layer compositional limitation recited instant claim 1. See Table B-6 at cols. 40-41. Hashizume'721 does not identify the intermediate layer as a photoconductive layer. However, the intermediate layer comprises an amorphous material having amorphous silicon as its base, which meets the photoconductive layer compositional limitations recited in instant claim 1. Col. 15, lines 4-8; and Table B-6. Thus, it is reasonable to presume that the intermediate layer in example B-4 is a photoconductive layer. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Accordingly, the photosensitive member meets the layer structure recited in instant claims 1 and 5-8. The photoconductive layer and the intermediate layer have thicknesses of 30 and 0.5 μm , respectively. The total thickness of the photoconductive layer and the intermediate layer is within the photoconductive layer

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thickness of 10 to 60 μm recited in instant claim 3.

According to example B-4, the projection portions of the spherical protrusions, i.e., protuberances, have been flattened by polishing the surface of the photoconductive layer prior to the formation of the intermediate layer. See example B-4. Thus, the protrusions in the photoconductive layer, i.e., the layer region (A), have been stopped from growing at the surface of the photoconductive layer as recited in instant claim 1.

According to Hashizume'721, the photosensitive member is made by the following steps: (1) forming the photoconductive layer on charge blocking layer on the conductive support in a vacuumed reaction chamber by decomposing at SiH_4 gas to form the amorphous silicon containing layer; (2) removing the photoconductive layer coated member from the reaction chamber; (3) polishing the surface of the photoconductive layer to flatten the protrusions of the surface of the photoconductive layer; (4) returning the polished member to the reaction chamber to form the amorphous silicon intermediate layer on the polished photoconductive layer; and (5) forming the upper charge blocking layer and the surface layer on the intermediate layer to obtain the photosensitive member described above. See example B-4 The Hashizume'721 method meets the method steps recited in instant claims 9, 10, and 17.

10. Claims 1, 3, 5-7, 9, and 17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,512,510 (Murayama), as evidenced by applicants' admissions at page 6, line 15, to page 7, line 25, and page 9, lines 13-15, of the instant specification (applicants' admission I).

Murayama discloses an electrophotographic photosensitive member comprising a conductive support, a lower charge injection obstruction, i.e., a blocking layer, photoconductive layer, and a surface layer. Fig. 4; col. 6, lines 18-32; and example 3 at col. 15 and in Table 2 at col. 17. The photoconductive layer comprises a second photoconductive layer and a first photoconductive layer. The first and second photoconductive layers comprise amorphous material having silicon atoms as its base, which meets the photoconductive layer compositional limitation recited instant claim 1. See Table 2. Accordingly, the photosensitive member meets the layer structure recited in instant claims 1 and 5-7. The first and second photoconductive layers have thicknesses of 25 and 3 μm , respectively. The total thickness of the photoconductive layer is within the photoconductive layer thickness of 10 to 60 μm recited in instant claim 3.

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According to Murayama, the photosensitive member in example 3 is produced using the apparatus used in Experimental Example 5. The photosensitive member is made by a plasma CVD process using electromagnetic waves having a frequency of 13.56 MHz or higher and a power for generating plasma that forms the photoconductive layers under conditions that the spatial potential of the plasma generated by the electromagnetic wave with respect to the base of the photosensitive member is 100 V and that the current density of ions incident upon the base is 2 mA/cm². See Example 3. According to Murayama, by adjusting the spatial potential of the plasma to a value not higher than 120 V and the current density to ions incident upon the base to a value not smaller than 0.4 mA/cm², the number of spot defects on the surface of the photosensitive member can be reduced. The number of spot defects is represented by the number of spherical protrusions, i.e., protuberances, of 10 μ m or greater existing in 9 cm² on the photosensitive member surface counted by microscopic observations. Col. 12, lines 5-36.

Murayama does not explicitly disclose that the protuberances on the surface of the second photoconductive layer, i.e., layer region (A), have been stopped as recited in instant claim 1. Nor does Murayama disclose that its method of making the photosensitive member stops protuberances from

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growing at the surface of the second photoconductive layer. The instant specification discloses that the photosensitive member recited in instant claim 1 made by the process recited in instant claim 9 can reduce number of image defects, without adversely affecting any electrical properties. Instant specification, page 6, line 15, to page 7, line 25; and page 9, lines 13-15. As discussed above, Murayama teaches a method of reducing the number of spot defects, i.e., spherical protrusions, on the surface of the photosensitive member surface. In addition, according to Murayama, its photosensitive member has improved charging and photoresponse, and reduced photo-memory and defects that cause spot image defects. Col. 7, lines 1-9; and Table 4 at col. 19, example 3. Thus, because the method disclosed by Murayama produces a photosensitive member that reduces the number of defects that cause spot image defects, it is reasonable to presume that the "protuberances" on the surface of the second photoconductive layer in the resultant photosensitive member disclosed by Murayama are stopped from growing at the surface of said layer as recited in instant claim 1 and that the Murayama method stops the growth of the surface "protuberances" on the surface of the Murayama second photoconductive layer as recited in instant claim 9. The burden is on applicants to prove otherwise. Fitzgerald, supra.

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11. Claims 2, 4, 11-16, 18, 19, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest the method recited in instant claims 11-16 and 18-21. Nor does prior art teach or suggest a photosensitive member as recited in instant claims 2 and 4.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Mr. Nam Nguyen, can be reached on (571) 272-1342. The central fax phone number is (571) 273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD
May 11, 2006

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1700